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THE LOG OF THE LAB

Items of Current Research

FOREST PRODUCTS LABORATORY* FOREST SERVICE

U. S. DEPARTMENT OF AGRICULTURE

Madison, Wisconsin



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NEW PULPWOODS AND WOOD PULPS

A SHORT TIME AGO a representative of the Forest Products Laboratory spoke before the Florida Commercial Forestry Conference at Marianna on the suitability of southern woods for pulp and paper making. At that very time a ship was at the Pensacola wharf discharging a cargo of newsprint paper from Finland for Florida consumption. The same thing happens frequently at many of our ports, even in locations where wood is a principal natural resource.

"Why can't we make paper like that right here at home?" a member of the conference suggested.

The answer is that from a technical standpoint not only newsprint but a variety of other light-colored papers can be and have been made from southern woods on a laboratory scale. How soon these products will be manufactured commercially depends on how soon laboratory results can be tied in with the economic trend and with the daily grind of mill practice.

At present the southern pulp industry is concerned mainly with brown sulphate or kraft, a strong pulp excellent for wrapping papers, containers, and similar uses. This is a big consumption field, but for economic reasons it is desirable that southern pulp products should be more diversified. All the eggs should not be in one basket.

The same principle applies to pulpwoods. Throughout the country comparatively few species are now used in pulp and paper production. Undue restriction of species, either through prejudice or lack of technical knowledge, is unsound practice. The sources of pulp should be consistently broadened and diversified if we are to develop and maintain national independence in pulp and paper production.

Seeking to develop facts in line with these basic principles, the Forest Products Laboratory from time to time has put forth findings pointing to the use of new species for pulp and to improved utilization of species now in common use. In important instances this has required consideration of

* Maintained at Madison, Wis., in cooperation with the University of Wisconsin

species on a regional basis. For example, intensive investigations are in progress on western and on southern woods. The latter have now been under way long enough to develop information of special interest. Some of the findings are the following:

1. Production of strong white sulphate pulp from southern pines, a high-grade and very useful paper-making material developed through improved cooking and bleaching methods. This product is of particular interest to the established kraft industry.

2. Book paper from southern pines and gums. A process involving two-stage bleaching. This is now in commercial production in certain southern mills. Two-stage methods of bleaching have been extended to many other types of pulps in the North and West as well as in the South.

3. Production of sulphite and groundwood pulps from young slash pine. Satisfactory newsprint papers have been made at the Laboratory by combining these pulps in proper proportions. This development is noteworthy, as heretofore the southern pines, because of their resinous character and high percentage of heartwood, have not been considered suitable for sulphite or groundwood pulps. However, as recently pointed out by Dr. C. H. Herty, a specialist in southern forestry matters, young slash pine is prac-

tically free from heartwood and is low in resin. Moreover there is an abundance of this species coming in as second growth on the cut-over forest lands of the South. Special acknowledgement is due to Dr. Herty for his contribution in this connection.

4. Sulphite, groundwood and semi-chemical pulps from black gum or other hardwoods, valuable as filler for newsprint and book papers. "Black" gum happens to be among the whitest of all known woods and requires little or no bleaching according to its use.

Particulars of these or other processes and samples of the products will be furnished by the Laboratory to interested individuals and industrial or commercial groups on request.

Intensive research on the western regional species has only recently been started, but findings of equal interest and importance are confidently expected in connection with this work.



WHEN TO REPAINT

REPAINTING should not be put off until the old coating has flaked badly and much bare wood is exposed. The old coating serves as the foundation for the new one, and if it is badly chipped and broken, customary methods of repainting do not secure a first-class appearance and a durable

repaint job. Very often coatings fail to give adequate protection against weathering long before they flake noticeably. This is especially true of flat-grained boards of light-weight, fine-textured species that hold paint well. Conspicuous wood checks or cracks show clearly that the wood is no longer receiving sufficient protection, even though the coating as a whole is apparently intact. Repainting neither heals nor entirely conceals weathering damage of this kind that has become conspicuous, but if the wood is repainted promptly when wood checks first begin to appear, it can be protected indefinitely from weathering.

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THE GIANT'S CREDENTIALS

Through the courtesy of Major H. Steere-Clark, Safety Director of the British Columbia Loggers' Association, Vancouver, B. C., and of Mr. Charles Illingworth, also of Vancouver, further evidence has been received concerning the gigantic Douglas fir mentioned in our previous issue.

The new information is that the tree grew in the Seymour Valley, near Vancouver, and was felled in 1895. The tree was believed to have been 2,000 years old. The butt diameter of 25 feet, attested by several residents of the district, is fully vouched for by Major Steere-Clark. It is even possible that he may succeed in locating the stump, in which case readers of the LOG may expect a final report.

The height of the tree, earlier quoted as 471 feet, has been corrected by Major Steere-Clark to 417 feet. Even at that, the dimensions as stated rank this specimen the World's Supreme Tree.

The possibility that a Douglas fir thus takes the crown above all known sequoias (redwoods) will doubtless be a surprise to botanists. What other monster Douglas firs well over 300 feet tall are recorded or still standing? We shall be glad to hear.

NEW LABORATORY PUBLICATIONS

1. Technical Bulletin No. 226, The Distribution and the Mechanical Properties of Alaska Woods. Describes the tall and heavy stands of softwoods, with some hardwoods, that offer opportunities for developing permanent sawmill and pulping industries in our great territory of the North.

2. Miscellaneous Publication No. 107, An Explanation of American Lumber Standards. A semitechnical treatise that makes clear how the nationally adopted Standards apply to the purchase of lumber by the farmer, contractor, and home builder.

3. Circular No. 163, Manufacture of Dimension Stock from Northern Hardwoods. Presents first-hand information on production costs and methods based on direct observation and time studies in the woods and at mills.

These publications can be obtained from the Laboratory free while the supply lasts.

THE NEW BUILDING for the Forest Products Laboratory will occupy the site of several Indian mounds estimated to be 500 to 1000 years old. Excavation of the last mound of the group was completed last month by the Wisconsin Historical Museum. It proved to contain a ceremonial fireplace, together with symmetrically placed boulders. The only other relics were small deposits of ashes. Two other mounds on the site some years ago yielded earthenware fragments and the remains of a burial.

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THE MYTHOLOGY OF WOOD

(Continued)

3. *THE FALLACY that wood from trees cut in summer is much less resistant to decay than that cut in winter.*

The more favorable conditions for decay in the summer are sufficient to explain the greater decay of wood during the warm season. There is no known chemical change in the heartwood (extractives in the heartwood determine durability) between seasons. Sapwood is not a factor in decay, inasmuch as it is not durable in any sense of the word.

4. *THE FALLACY that turpented trees furnish less resinous and weaker wood than unturpented trees.*

Tests made as early as 1893 showed no discernible difference either in strength or resin content between "bled" and "round" mature longleaf pine. The heartwood, because it is always dead wood after it ceases to be sapwood, can not be affected by changes in the tree's life processes. Heartwood formed after turpentering would tend to have more rather than less resin.

QUESTIONS THE LABORATORY IS ASKED

Q. How does magnolia rate as a furniture wood?

A. Furniture factories buy considerable quantities of magnolia, particularly for making kitchen furniture—tables, cabinets, and benches. One of the greatest uses of magnolia in the furniture trade is for frames of upholstered pieces. The wood is also quite commonly used in the manufacture of dining-room, living-room, and bedroom furniture.

Magnolia is a very good wood for furniture, being comparable to yellow poplar in some of its properties. Practically all magnolia lumber comes from the evergreen magnolia (*Magnolia grandiflora*), which grows widely in the South.

Q. What woods are used in the manufacture of excelsior?

A. The woods most used in American excelsior manufacture are cottonwood, aspen, basswood, and yellow pine. Also used to some extent are red gum, willow, yellow poplar, and buckeye.

Q. What is pencil cedar?

A. Until a few years ago, almost all the pencils made in this country were of eastern red cedar (juniper), which is the best pencil wood we have. At present, however, owing to the growing scarcity of suitable juniper, less than 10 per cent of lead pencils are made of that wood. More than 90 per cent of pencil wood now comes from the Pacific Coast states, the principal species in use being incense cedar from the Sierra Nevada Mountains of California. Western red cedar is used to a small extent.